

REMARKS/ARGUMENTS:

The above-identified patent application has been amended and Applicants respectfully request the Examiner to reconsider and again examine the claims as amended.

Applicants have filed herewith a Request for Continued Examination (RCE) under 37 C.F.R. §1.114 and Applicants respectfully request that the Amendment be entered in accordance with the provisions of 37 C.F.R. §1.114.

Claim 1-30 are pending in the application. Claims 1, 10, 19 and 30 are herein amended.

The Examiner rejected claims 1, 4, 8, 13 – 17 and 30 under 35 U.S.C. §103(a) as being unpatentable over Arimoto.

Applicant submits that Claim 1 is patentably distinct over the cited reference since the reference neither describes nor suggests a "...system for focusing electromagnetic energy on a target having a nature, functionality, purpose, operational state and threat, the system comprising ... first means for providing a pilot beam of electromagnetic energy ... second means for receiving a spatially and temporally dependent electromagnetic field having phase, frequency, amplitude, and polarization characteristics, wherein the electromagnetic field corresponds to a reflection of said pilot beam from the target ... third means for analyzing the received electromagnetic field from the target to determine, from the received electromagnetic field, information that is indicative of at least one of: the nature of the target, the functionality of the target, the purpose of the target, the operational state of the target and the threat of the target and in response to the information for providing data which is indicative of at least one of: the nature of the target, the functionality of the target, the purpose of the target, the operational state of the target and the threat of the target... and fourth means for receiving the data from said third means and in response to said data for providing a modulated-and wherein said fourth means is adapted to modulate the output beam by changing at least one of a phase characteristic, a frequency characteristic, an amplitude characteristic, a polarization characteristic and a carrier frequency wavelength characteristic and wherein the modulated output beam is predistorted to compensate for distortions, phase noise and amplitude noise in said received electromagnetic

field..." as called for in Claim 1.

Applicants believe that the Examiner's reliance on Arimoto is mis-placed. Arimoto is directed toward a laser communication system which utilizes adaptive optics to compensate for path distortions. The Arimoto system is designed to be a communications link. This system is a cooperative system, in that Arimoto states that a laser on the satellite "acts as artificial guide star" whose laser beam samples the atmospheric path from the satellite to the ground-based station, thereby enabling the adaptive optical system to compensate for path distortions.

By complete contrast, the invention as recited in claim 1 describes a non-cooperative system, in that the target does not possess a laser (if anything, the target would not desire itself to be seen, detected, or otherwise made itself known to our countermeasure system).

As is well-known in the art, the goal of a communications link is to exchange information between a set of nodes in a friendly (desirable, or known) manner. Thus, information is sent up to the satellite and information is sent down to the ground-based system. No explicit feedback control regarding this time-dependent, modulated information is discussed or implied. That is, the information in one direction can be totally independent from the information sent the other way.

By complete contrast, the invention as recited in claim 1 utilizes information obtained covertly from the target via the pilot beam. Ideally, the target would have no knowledge that information is being obtained from it. Moreover, the detected information from the target is used explicitly in a closed-loop processor to encode modulated information that is subsequently sent covertly back to the target.

Arimoto explicitly requires a laser placed at the satellite, without which the Arimoto system would not be able to establish a link, since the Arimoto system does not possess a laser beacon nor does the Arimoto system describe or suggest a means to illuminate the general region of space where a target may reside. Moreover, Arimoto neither describes nor suggests how information received at the ground station can be used to confuse the control systems of the

target, since a communications system goal is to exchange information, not influence/confuse the stations in the link.

Finally, the Examiner seems to assert or imply that Arimoto measures the wavelength, polarization, encoding, field aspects, etc and encodes the outbound beam with similar attributes. Applicant submits that given the hardware described in the system of the Arimoto reference, such an assertion is not reasonable. Arimoto merely measures the wavefront of the incoming beam (using conventional wavefront error sensors, that he explicitly shows), and uses this information in a closed-loop processor to control the wavefront of the out-going beam back to the satellite. There is no mention of these other beam attributes that are being measured and used in a decision-making process to affect the outbound beam, or, is it implied, for there would be no motivation whatsoever to do all this extra processing, given the premise of Arimoto's system.

Thus, Applicants submit that claim 1 is patentably distinct over the cited reference whether taken separately or in combination with other references of record in this case.

Claims 4, 8, 13 – 17 each depend either directly or indirectly from Claim 1 and thus are also patentably distinct over Arimoto generally for the reasons discussed in conjunction with claim 1.

The Examiner rejected claims 2, 3 and 5-7 under 35 U.S.C. §103(a) as being unpatentable over Arimoto in view of Livingston and Stappaert.

As discussed above, Arimoto is directed toward a communications system and thus fails to describe a system, in which the target does not possess a laser and which utilizes information obtained covertly from the target via the pilot beam as called for in each of dependent claims 2, 3 and 5-7. The Livingston and Stappaert references do nothing to remedy the deficiencies in Arimoto. Thus Applicant submits that claims 2, 3 and 5-7 are patentably distinct over combination of Arimoto in view of Livingston and Stappaert.

The Examiner rejected claims 9, 10, 11 and 18 under 35 U.S.C. §103(a) as being unpatentable over Arimoto in view of Anafi and Wang. The Anafi and Wang

references have been discussed in detail in the last response and those remarks are hereby incorporated by reference in this Response.

The deficiencies of Arimoto are discussed above and the Anafi and Wang (both discussed in detail in the last Response) do nothing to remedy the deficiencies in Arimoto. Thus Applicant submits that claims 9, 10, 11 and 18 are patentably distinct over combination of Arimoto in view of Anafi and Wang

The Examiner rejected claim 12 under 35 U.S.C. §103(a) as being as being unpatentable over Arimoto in view of in view of Anafi, Wang and Stappaert. The deficiencies of Arimoto are discussed above and as stated above and as of already made of record in this case neither the Anafi, Wang nor Stappaert references remedy the deficiencies in Arimoto. Thus Applicant submits that claim 12 is patentably distinct over combination of Arimoto in view of Anafi, Wang and Stappaert.

The Examiner rejected claims 19-29 under 35 U.S.C. §103(a) as being unpatentable over Arimoto in view of Garfinkle.

The deficiencies of Arimoto are discussed above. Garfinkle is directed toward a scanning tomographical imaging telescope and doe not remedy the deficiencies in Arimoto. Thus Applicant submits that claim 19 is patentably distinct over combination of Arimoto in view of Garfinkle since the references neither describe nor suggest a “ ... system for focusing electromagnetic energy on a target comprising ... first means for analyzing information included in a received electromagnetic field to determine ... information that is indicative of at least one of: a nature of the target, a functionality of the target, a purpose of the target, an operational state of the target and a threat of the target and for providing data in response thereto, said electromagnetic field being provided by star light and electromagnetic field distortions being due to the atmosphere ... and second means for receiving the data from said first means and for providing a modulated output beam in response to said data wherein said second means is adapted to modulate the output beam by changing at least one of a phase characteristic, a frequency characteristic, an amplitude characteristic, a polarization characteristic and a carrier frequency wavelength characteristic and wherein the modulated output beam is predistorted to

compensate for distortions, phase noise and amplitude noise in said received electromagnetic field..." as called for in claim 19.

Applicants respectfully submit that dependent claims 20-29 each depend either directly or indirectly from independent claim 19 and thus are patentably distinct over the cited references generally for the reasons discussed above in conjunction with claim 19.

For the foregoing reasons, Applicants respectfully submit that claims 19-29 are patentably distinct over combination of Arimoto in view of Garfinkle.

The Examiner rejected claims 13-17 and 25-28 under 35 U.S.C. §103(a) as being unpatentable over Arimoto in view of Garfinkle, Pepper and general knowledge in the art.

Claims 13-17 each depend directly or indirectly from independent claim 1 and thus include the features of claim 1. Thus claims 13-17 are patentably distinct over the combination suggested by the Examiner since the addition of the Pepper reference and/or the general knowledge in the art does not remedy the deficiencies of the cited combination of Arimoto and Garfinkle.

Nor does the combination cited by the Examiner describe or suggest "... means ... for providing a modulated output beam and wherein said fourth means is adapted to modulate the output beam by at least one of phase modulation, frequency modulation, amplitude modulation and polarization modulation ..." as also called for in claim 1.

Similarly, claims 25-28 depend indirectly from independent claim 19 and thus include all of the features of claim 19. Thus, claims 25-28 are patentably distinct over the combination suggested by the Examiner since the addition of the Pepper reference and/or the general knowledge in the art does not remedy the deficiencies of the cited combination of Arimoto and Garfinkle in that the Pepper reference and/or the general knowledge in the art do not show, teach or suggest at least "... first means for analyzing information included in a received wavefront to determine, from the received wavefront, information that is indicative of at least one of: the nature of the target, the functionality of the target, the purpose of the target, the operational state

of the target and the threat of the target and ... second means for receiving the data from said first means and for providing a modulated output beam ... wherein said second means is adapted to modulate the output beam by phase modulation, frequency modulation, amplitude modulation and polarization modulation... as called for in claim 19.

For the foregoing reasons, Applicants respectfully submit that claims 13-17 and 25-28 are patentably distinct over the cited references.

In view of the above amendment and remarks, Applicants submit that Claims 1-30 and the entire case are in condition for allowance and should be sent to issue and such action is respectfully requested. The Assistant Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 500845.

The Examiner is respectfully invited to telephone the undersigning attorney if there are any questions regarding this Amendment or this application.

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Respectfully submitted,

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